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HERDS ON THE MOVE: TRANSFORMATIONS IN TIBETAN NOMADIC PASTORAL SYSTEMS

Daniel Miller (USAID)¹

Eight thousand years ago, an event took place that changed the world. In the mountain valleys where modern Iraq, Turkey, and Iran intersect, some enterprising farmers determined that it was easier to make a living by specializing in raising livestock than growing crops. They left their farms and moved into the grasslands, herding their animals over a vast area, traveling to different seasonal pastures throughout the year with their belongings and homes rolled up and carried on the backs of animals. This was the first stage of what later became known as nomadic pastoralism, and the people that followed the herds were called nomadic pastoralists, or simply, nomads.

Sheep and goats were first domesticated about 10,500 years ago, but it took another couple thousand years before some hardy farmers, who raised both crops and livestock, ventured into the steppes and developed a culture that specialized in raising livestock. Since they first left the fertile, agricultural valleys with their livestock and moved into the steppes, they have been out there on the edge of civilization – out where the vast rolling grasslands meet the purple haze of the horizon – living a life that many aspire to, but which few are able to follow.

The word nomad is derived from the Greek term for pasture, *nomos*, and the adaptation of people moving with their animals across extensive pastures would eventually lead to the rise of nomadic cultures throughout the Middle East, Central Asia, and the Tibetan Plateau. Usually misunderstood, and often maligned, they prefer to be left alone to move with their herds on seasonal migrations.

Tibetan nomads, known in the Tibetan language as *drokpa*, meaning 'people of the high pastures', provide examples of nomadic

¹ The information and views presented in this paper are solely those of the author and do not necessarily represent the views or positions of the U.S. Agency for International Development of the U.S. Government.

livestock production practices that were once widespread throughout the world, but are now rare. The fact that nomads and, in some areas, wildlife, have managed to exist on the Tibetan Plateau and in the Himalaya, attests to the rationality and efficacy of many aspects of traditional Tibetan nomadic pastoral production. Over thousands of years, Tibetan nomads adapted to their environment, learning to live with what it offered instead of changing and molding the landscape to suit their needs, as farmers try to do. Thus, they have much to teach us about living in harmony with the land.



Nomadic pastoralism has been described as one of the great advances in the evolution of human civilization. The actual beginning of nomadic pastoralism on the Tibetan Plateau is not well known, but studies of pollen samples of grazing weeds from Tibetan areas indicate that livestock herding may have begun over 8,000 years ago during the mid-Holocene, with the conversion of forests to pastures from burning. The development of Tibetan nomadic pastoralism was undoubtedly shaped by early nomads moving into the Tibetan grasslands from the northwest out of Central Asia. The Tibetan black yak-hair tent, for example, is strikingly similar to the tents of nomad tribes in Afghanistan, Iran, and Iraq. The Yuezhi, an Indo-European speaking nomadic tribe, was known to reside in the Qilian Mountains and Gansu Corridor region on the northeastern edge of the Tibetan Plateau in the second millennium BC. They must have moved into the region long before, probably following trails into the Tibetan frontier region that later became the Silk Road. During the Chinese Shang Dynasty (1766 BC – 1122 BC), livestock-herding people known as the Qiang were reported to be widespread in the grasslands of the northeastern Tibetan Plateau. Some Qiang tribes were known as the Qiang of Many Horses, and supplied horses to the Shang Dynasty.

Recent archaeological studies in northern Bhutan now point to the existence of livestock herding as early as 4,000 years ago in some high mountain valleys in that Himalayan region. These early Himalayan herders would undoubtedly have moved into the area from neighboring regions of the Tibetan Plateau.

Today, the Tibetan nomadic pastoral area encompasses a vast landscape, stretching almost 2,500 km from west to east and 1,000

km from north to south. It is one of the largest pastoral areas on earth. Unfortunately, our understanding of Tibetan nomads' culture, their way of life, and livestock production systems remains scant, like green grass in the hot desert in the middle of summer. The ecology of the landscape they call home – grasslands, steppe, desert, mountains – is also not well understood, despite the huge expanse of land used by Tibetan nomads.



With their homes rolled up in bundles and lashed to the back of yaks as they move across the steppes, Tibetan nomads offer a rare perspective on life. Their world operates on a rhythm quite different from the one to which we are accustomed. Their lives are finely tuned to the growth of grass, the births of animals, and the seasonal movement of their herds. Like many people living close to nature, the nomads developed a close connection to the land that nurtures them.

Constantly exposed to the harsh elements of the environment, Tibetan nomads display an impressive disregard for what we Westerners would consider bad weather conditions. Whether it is sudden hailstorms in the middle of summer or severe snow storms in the frozen depths of winter, nomads seem to take these events for granted and face these hardships with amazing equanimity. Values that humankind admires – courage, integrity, and generosity – are principles instinctive to nomads. They also have an intimate knowledge of their environment and an amazing ability to handle animals – a skill rare among most people today.

Moving across the grazing lands with their yaks, their homes a yak-hair tent, nomads evoke freedom. But nomads' movements are not haphazard; they are purposeful, always searching for the best grass, water, and shelter for their yaks, sheep, and goats. While never totally free to roam aimlessly, as their movements were usually well prescribed by monasteries, wealthy landlords, or tribal restrictions, Tibetan nomads' worldview cherishes independence and the liberty to move in search of grass and water for their animals. This was especially the case among the Golok tribes in the Amdo region of the northeastern part of the Tibetan Plateau, and among various nomad tribes of the region of Kham. Despite these admirable traits, nomads throughout the Himalaya and Tibetan Plateau are now facing serious

challenges to their way of life.

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In 1947, Francis Kingdon-Ward, a British botanist and explorer, who first traveled to Tibet in 1910 and went on to make over twenty-five expeditions in search of plants, wrote:

There is an aspect of Tibet, and in the modern world perhaps the most important one, which is rarely emphasized. The people with their strange culture and stranger religion, the topographical features, violent and primitive like those of newly upheaved crust, the fierce climate, the vegetation – where there is any – have all been the theme of travel books, or have received attention in geographical literature. But Tibet considered primarily as a grazing land seems to have been overlooked. Yet that is what it really is.

For fifteen years, from 1988 to 2003, I spent part of each year in the grazing lands of the Tibetan Plateau. The fact that these grazing lands have supported nomads for thousands of years while sustaining a varied and unique flora and fauna bears witness to the existence of a remarkably diverse and resilient rangeland ecosystem. These 'fields of grass' provide the theatre in which nomads and their animals interact and bring into force a unique culture – a remarkable nomadic way of life, thousands of years old, about which so little is still known.

Trained as a rangeland ecologist, I am interested in grasses and the interactions between vegetation and the animals – both wild and domestic. In my numerous journeys in the Himalaya and Tibetan Plateau I have endeavored to understand the ecology of the rangelands. Why are distinctive plant communities found in certain areas? What species of plants dominate these plant communities? What grasses are grazed by livestock? Do wildlife eat the same plants? Why are wildlife found in certain locations and not in others? Is there really competition for forage between Tibetan wild ass, or *kiang*, and livestock, as the nomads claim there is? These are questions I asked myself as I walked across the Tibetan landscape, my eyes trying to pick out patterns on the ground.

To the untrained eye that is unable to distinguish one plant from another, Tibetan Plateau rangelands can appear boring and lifeless, particularly when majestic mountains dominate the horizon. But it is the diversity in plant species and mix of plant communities on the rangelands that influences the grazing patterns of livestock and the behavior of wildlife. And it is this remarkable variation in vegetation and the ecological dynamics of the Tibetan Plateau and Himalayan ecosystem that needs to be understood in order to sustain the natural resources for future generations of Tibetan nomads.

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From a global environmental perspective, few other places are as important as the Himalaya and Tibetan Plateau region is now. Rising concerns about global warming, climate change, receding glaciers, desertification, food insecurity and loss of biodiversity all point to the significance of the Tibetan Plateau in addressing these global challenges. Increased scientific research is needed, along with an improved understanding of current land use practices, especially of agriculture, forestry and livestock grazing. Critical analysis of existing conservation and economic development policies is required. New thinking on how we view the landscape is also needed.

Addressing global environmental challenges in the twenty-first century demands that we start viewing the Tibetan landscape more holistically and try to develop a better understanding of its unique ecology, the value of its natural resources, and its illustrious cultural heritage. Understanding Tibetan nomads requires knowledge of the environment in which they live.

Conservation and development strategies for the Tibetan Plateau need to encompass a broad scale and implement programs at the level at which natural systems operate. This landscape level of attention ensures persistence of populations and ecological processes and has to work across political boundaries. Unhindered by the clutter of political boundaries, one begins to define the land by watersheds, by mountain ranges and large lakes – by the natural demarcations of an environment. Artificial, man-made, politically drawn lines on a map do not stop a river from flowing downhill, nor do they prevent black-necked cranes from migrating or Tibetan argali and Tibetan wild ass from crossing international borders in search of

forage to graze on. Birds and animals don't need passports and visas to travel, and we now need to adopt a similar style in how we perceive landscapes.

In 1995, the American poet, Gary Snyder, got it right when he wrote, "Now, with insights from the ecological sciences, we know that we must think on a scale of a whole watershed, a natural system. A habitat. To save the life of a single parrot or monkey is truly admirable. But unless the forest is saved, they will all die." Saving the grasslands and nomadic culture of the Tibetan Plateau requires a new way of thinking; a mindset that recognizes watersheds instead of political frontiers to define plans of action for conservation and development.



Mobility is a central theme in nomadic pastoral production practices in the Himalaya and Tibetan Plateau. The movement of herds and the flexible use of rangelands were strategic elements in the development of Tibetan pastoralism and the key to survival in the harsh environment of the Tibetan Plateau. Traditional nomadic pastoralism, which emphasized multi-species herds, complex herd structure, regular movement of livestock, and links with agricultural communities, developed as a rational response to the unpredictability of the high elevation landscape.

Nomads raise a mix of different livestock species; each has its own specific characteristics, uses and adaptations to the environment. The multi-species grazing system – the raising of yaks, sheep, goats, and horses together – maximizes the use of rangeland vegetation. The pastoral system that evolved through centuries of trial and error was a sophisticated adaptive response by the nomads to the environment; a rational adaptation to the spatial and temporal differences in rangeland resources. Livestock management systems were designed around the movement of herds to various pastures during different seasons of the year and the tracking of favorable forage conditions. The nomads' animals were regularly moved between pastures to maintain rangeland condition and animal productivity. The movement of livestock between different pastures also took advantage of topography and climatic factors to make the best use of the rangeland. It also took into account the

unpredictability of droughts and frequent snowstorms. This is why the movement of herds was so important. Although to some, the movement of herds may appear as haphazard, nomads do not move randomly across the land; rather, their movements are often well prescribed by complex social organizations and are often highly regulated.

Owen Lattimore, in his classic, *Inner Asian Frontiers of China*, first published in 1940, encapsulated the movements of nomads:

Within the world of the steppe there are many types of migration cycle, governed partly by geography and partly by social specialization in the use of different animals. There are groups that move over considerable distances and others that move only a few miles in the course of a year. Some nomads have a pastoral range which includes both rich and poor grazing, while some never leave the arid-steppe or remain entirely in good meadow country. There is an intricate relationship between the kind of pasture that predominates, the frequency of moving camp, the distance traveled from one grazing ground to the next, and the climate and soil.

The nomads' tents are an excellent example of how Tibetans adapted to a mobile lifestyle of raising livestock. Made from the long, coarse hair of the yak, the tents are well-suited to the nomadic lifestyle on the windswept steppes of the Tibetan Plateau. They can be easily taken down and packed on yaks when moving camp. They keep out the rain, yet let in light. Sections of the tent that become old and frayed can be easily replaced with new strips of woven yak hair. The size and design of nomads' tents varies across the Plateau, but, wherever they are found, they provide an excellent shelter that has suitably served nomads for thousands of years.

The seasonal movement of people with their herds is termed transhumance. This refers to the vertical seasonal movement of livestock, generally to higher elevation pastures in the summer and a descent to lower elevation grazing lands in the winter. Movements are usually relatively short, with numerous locations, or pastures, used throughout the year. These transhumant herders usually have a permanent home, typically in the valleys where crops are grown. The

people that practice transhumance are also called agro-pastoralists, as their livelihood is a mix of agriculture and animal husbandry. In the Tibetan language, these agro-pastoralists are termed *samadrok*.

Movements of herds are usually linked to the Tibetan lunar calendar and an auspicious day is picked for these movements. On the grazing lands of the Tibetan Plateau, movements are not defined so much by seasonal vertical moves as they are by horizontal migrations. In some areas, nomads actually move yaks to higher elevations in the winter.

Over thousands of years, nomads in the Himalaya and Tibetan Plateau acquired complex knowledge about the environment in which they lived and upon which their lives depended. The fact that numerous, pastoral groups remain to this day, despite living in one of the harshest pastoral areas on earth, bears witness to the extraordinary knowledge and animal husbandry skills of the nomads. We can learn a lot from the nomads. Their lifestyle is more basic, yet wholesome. Their lives are geared to the seasons. They follow a calendar according to the phases of the moon. They are tough enough to live in a yak-hair tent in the winter and are highly skilled in handling rambunctious animals like yaks. Courageous when confronted with danger, nomads exhibit amazing hospitality to strangers who enter their tents. As long as nomads are allowed to move in harmony with their animals across the grazing lands of the Tibetan Plateau and Himalaya, there is hope for the future.

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The Tibetan antelope, or *chiru*, perhaps more than any other animal, embodies the expanse of the Tibetan Changtang ecosystem, the vast northern plains of the Tibetan Plateau. The *chiru* is a migratory animal and needs a vast landscape in which to travel between its winter ranges and birthing grounds. They cover distances of up to 400 kilometers, across the steppes and over mountains on their seasonal migrations. In 1994, while working in the Changtang Wildlife Reserve in northern Tibet, I attempted to follow the antelope's migration across the Changtang to their birthing grounds on the northern edge of the plateau. Observing herds of hundreds of female *chiru*, with their female young of the previous year, traveling on ancient paths as they have for thousands of years, is to bear

witness to one of the earth's outstanding ecological spectacles.

Understanding *chiru* migratory movements could provide valuable insight into the structure and function of the Tibetan Plateau grassland ecosystem and assist in efforts to protect biodiversity. The continuation of Tibetan antelope migration, one of the last, great natural marvels on earth, depends on better protection of the species, improved understanding of their ecology and better insights into the dynamics of the Tibetan Plateau ecosystem. It also requires innovative approaches to conservation and pastoral development that adopt participatory, integrated ecosystem management models that work at the landscape level with Tibetan nomads. That is, approaches that consider both the needs of the wildlife, and the nomads' requirements for grazing their animals. The diets of domestic sheep and goats often overlap with those of the smaller wild animals like gazelle. But is there competition between wildlife and domestic animals for forage? If so, to what extent? To what degree can wildlife and livestock co-exist? And if limitations have to be placed on nomads in order to conserve wildlife, what alternative employment opportunities are there for nomads?

Given its huge extent, environmental conservation on the Tibetan Changtang needs to encompass a broad scale and take into account the entire territory that wildlife and nomads use. This landscape level of consideration ensures persistence of wildlife populations and ecological processes and has to work across wildlife reserve or political boundaries.

The Tibetan Plateau and adjoining Himalayan region is one of the most ecologically diverse landscapes on earth. A number of globally important biodiversity areas, or 'hotspots' are located here. With their highly distinctive species, ecological processes, and evolutionary phenomena, these areas are some of the most important sites on earth for conserving biodiversity. The northwestern part of the Tibetan Plateau, the Changtang, also includes the most unspoiled example of a mountain rangeland ecosystem in Asia with a relatively intact vertebrate fauna, and is one of the largest remaining terrestrial wilderness regions left in the world. The area is still relatively little affected by humans and provides the untrammelled space for large herds of wild yak and Tibetan wild ass to still run wild across the

steppes. It is also home to numerous other rare and endangered wildlife species such as the migratory Tibetan antelope, Tibetan argali, blue sheep, brown bear, and snow leopard. Conserving these animals and their rangeland habitat is an important priority for the global conservation community. Without the wild yak, wild ass, and antelope, the grazing lands of Tibet will have lost some of their characteristic species; a loss the world cannot afford and should not allow to happen.

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My last trip to the Tibetan Plateau was in the summer of 2003 when I traveled from Xining, the capital of Qinghai Province, China to the town of Yushu, or Jiegu, as it is known in the Tibetan language, retracing my first journey on the Plateau made fifteen years earlier. The nomadic pastoral areas have seen far-reaching changes since I first visited them. These changes are radically transforming age-old livestock production methods, land-use practices and the socio-economic fabric of Tibetan society. Many rangelands that used to be managed communally have been privatized, allocated to individual households and fenced. Conflicts over grazing rights have led to 'range wars' in some areas. Fences have curtailed seasonal movements of livestock, leading to overgrazing in many places. Fences have also triggered conflicts with wildlife, especially *kiang* and *chiru*.

In the northeastern Tibetan Plateau, it is estimated that one-third of the rangelands are considered to be overgrazed. Officials, concerned with environmental degradation, are moving nomads out of the grasslands and settling them in towns, but nomads are often ill-prepared for this new type of existence, lacking the education and skills to find gainful employment.

I have often argued for maintaining livestock mobility in order to promote livestock production and the health of the rangelands in the pastoral areas of the Tibetan Plateau. Current policies and plans to settle Tibetan nomads go against state-of-the-art information and analyses for livestock production in pastoral areas. This body of scientific knowledge champions the mobility of nomads' herds as a way to sustain the grazing lands and nomads' livelihoods. Livestock mobility should be encouraged on the Tibetan Plateau instead of

eliminated and nomads should be empowered to manage the rangelands they use. Certainly nomads need to be more involved in any process that attempts to transform their production system. What happens when nomads are forced to settle and move into towns? Is their indigenous knowledge of the rangelands and livestock lost? Is their relationship with the environment severed? Does a 'home on the range' have to signify the demise of Tibetan nomadic pastoralism? These are important questions that require answers in order to develop the rangelands of the Tibetan Plateau in a sustainable manner and in ways that are sensitive to the nomads' needs and desires.

The reasons for rangeland degradation on the Tibetan Plateau are not well understood. There are signs of a gradual desiccation of the plateau, evident from old beach lines around lakes. It is also apparent that alpine sedge meadows are undergoing a physical transformation, probably because of reduced precipitation over the last couple of thousands of years. Less moisture possibly means that the sedge meadow plant communities cannot sustain themselves any longer and plants are dying, leading to 'degraded' patches of bare soil, or 'black beach' as it is termed. Livestock grazing and the nomads' traditional practices are often blamed for this degradation.

Black-lipped pikas (*Ochotona curzoniae*), a small, tailless, mouse-like mammal related to rabbits, is widespread on the plateau, burrowing into the ground. Pikas are often blamed for grassland degradation. As a result, they have been indiscriminately poisoned, but pikas are an important part of the ecosystem, providing nesting sites for many birds and prey for predators, including Tibetan brown bear. In the Changtang Wildlife Reserve, I once watched a bear, closely followed by a wolf, digging for pikas. When the bear failed to grab the pika as it scurried out of its hole in the ground, the wolf quickly bounced on it. The pika is now considered a 'keystone species' on the Tibetan Plateau; they play a pivotal function in ecosystem processes and without them it would be difficult for many other species to exist.

Efforts to manage Tibetan rangelands must address the full range of causes of degradation, loss of biodiversity, low livestock productivity and marginalization of the nomads and embrace the

opportunities that the rangelands and the nomads offer for sustainable development. While certain areas of the plateau have been subjected to overgrazing by livestock in the past and livestock numbers do exceed the carrying capacity of the rangelands in some areas now, nomads are, unfortunately, often blamed for much of the environmental deterioration seen today.

More efforts are needed to develop a better understanding of nomadic production systems. Practices vary across the Tibetan Plateau and these differences need to be analyzed. Why do nomads in different areas maintain different livestock herd compositions? What forms of social organizations exist for managing rangelands and livestock? How have these practices changed in recent years? Answers to these, and related questions, will help unravel many of the complexities of Tibetan nomadic pastoralism.

Maintaining rangeland health is critical, not only to provide forage for wildlife and livestock, but to sustain the watershed properties of the rangelands and to preserve the Tibetans' cultural heritage. Development policies and programs need to integrate the ecological processes of the rangelands with the economic processes of livestock production and the socio-cultural aspects of improving Tibetan nomads' livelihoods.

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On my journeys, I would occasionally come across skulls of wild yaks. Some were old and bleached out. Others still had shiny, black horns. Wherever they were found, wild yak skulls served as a poignant, silent sentinel – a reminder of the magnificent herds of wildlife that once roamed the Tibetan Plateau. They also speak of the elemental wild nature of the Tibetan landscape and the proud nomads who fashioned a remarkable way of life on the steppes.

There will be a great and tragic emptiness on the Tibetan Plateau and Himalaya if the environment is allowed to deteriorate. The wildlife – grand, moving masses of migratory *chiru*, herds of magnificent wild yak, and graceful Tibetan gazelle bounding across the steppes – will only be found in photographs of explorers' accounts or in the memories of older Tibetan nomads recounted to their grandchildren. With their lives intricately linked to the natural resources, the irreplaceable nomadic culture will also be transformed

beyond recognition and Tibetan nomads will lose their singular identity. These consequences can be avoided if timely action is taken to acknowledge the special attributes of the Tibetan Plateau ecosystem. This requires serious evaluation of the natural resources, increased understanding of current land use practices, and greater appreciation of Tibetan nomads and their worldview.

The challenge is to balance the diverse economic, cultural, and social needs of the inhabitants of the Tibetan Plateau with the need to maintain the environment and conserve the biodiversity and cultural heritage of the landscape. This calls for strengthened participation by local nomadic and farming communities in the entire development process. It also requires that Tibetans' indigenous knowledge of the environment is better understood and that there is greater acknowledgement of the efficacy of many traditional natural resource management practices and beliefs.

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The Himalaya and Tibetan Plateau is a special place. The snow-capped peaks are awe-inspiring. The Tibetan steppes evoke boundless possibilities, liberating one's spirit. A sacred geography for followers of many religions, there are revered places of pilgrimage scattered across the region. As the birthplace of many of the world's major rivers, this landscape is hallowed ground, demanding greater appreciation and respect. Looming threats of climate change, melting glaciers, loss of biodiversity, and the cultural and socio-economic transformations that are already taking place should be viewed as a wake-up call for everyone concerned about this high and sacred realm.

The survival of Tibetan nomadic pastoralism requires new attitudes that view the landscape more holistically, with greater appreciation for its intrinsic beauty as well as the economic value of its natural resources. It also requires a better sense of the sacred nature of the landscape as the headwater environment for Asia's major rivers. As a first step, we could begin by acknowledging the hallowed nature of this land and start to treat it with a little more reverence and respect, as Tibetan nomads themselves have, for centuries.

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